IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

REALTIME DATA, LLC D/B/A/ IXO,	§	
	§	
Plaintiff,	§	
v.	§	No. 11 Civ. 6696 (KBF)
	§	No. 11 Civ. 6701 (KBF)
	§	No. 11 Civ. 6704 (KBF)
MORGAN STANLEY, ET AL.,	§	
	§	
	§	
Defendants.	§	ECF Case

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REALTIME DATA, LLC D/B/A/ IXO,	§	
	§	
Plaintiff,	§	
v.	§	No. 11 Civ. 6697 (KBF)
	§	No. 11 Civ. 6699 (KBF)
	§	No. 11 Civ. 6702 (KBF)
CME GROUP INC., ET AL.,	§	
	§	
	§	
Defendants.	§	ECF Case

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REALTIME DATA, LLC D/B/A/ IXO,	§	
	§	
Plaintiff,	§	
v.	§	No. 11 Civ. 6698 (KBF)
	§	No. 11 Civ. 6700 (KBF)
	§	No. 11 Civ. 6703 (KBF)
THOMSON REUTERS, ET AL.,	§	
	§	
	§	
Defendants.	§	ECF Case

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DECLARATION OF MICHAEL IAN SHAMOS, PH.D., J.D., IN SUPPORT OF PLAINTIFF REALTIME'S OPPOSITION TO DEFENDANTS' MOTION FOR PARTIAL SUMMARY JUDGMENT OF INVALIDITY OF THE PATENTS-IN-SUIT FOR FAILURE TO SATISFY THE DEFINITENESS AND WRITTEN DESCRIPTION REQUIREMENTS OF 35 U.S.C. § 112

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I, Michael Ian Shamos, hereby declare under penalty of perjury that the facts set forth herein are true and correct to the best of my knowledge and belief, and, if called as a witness, I can and will testify at trial as to the matters discussed in this Declaration.

1.   I have been retained as an expert in this case by counsel for Plaintiff Realtime Data, LLC d/b/a/ IXO ("Realtime") to provide my opinions concerning the alleged invalidity of U.S. Patent Nos. 7,777,651 (the "'651 Patent"), and 7,714,747 (the "'747 Patent") (collectively, the "Patents").

2.   I previously submitted a declaration entitled "Declaration Of Michael Ian Shamos, Ph.D., J.D., in Support of Plaintiff Realtime's Claim Construction Brief" (the "Opening Declaration"). My qualifications were listed in the document and my résumé was attached thereto as Exhibit 1. I incorporate the Opening Declaration herein by reference.

3.   I have now been asked to provide my opinions concerning the arguments propounded by Defendants in "Defendants' Memorandum Of Law In Support Of Motion For Partial Summary Judgment Of Invalidity Of The Patents-In-Suit For Failure To Satisfy The Definiteness And Written Description Requirements Of 35 U.S.C. §112," dated April 4, 2012 ("Defendants' Brief") and the exhibits thereto, particularly the declaration of Defendant's expert James Storer (the "Storer Declaration").

A.   ALLEGED INDEFINITENESS

4.   Defendants allege in their brief that two limitations in the Patents are "insolubly ambiguous an unintelligible." These are:

> "decompressing the data block with a selected lossless decoder utilizing *content dependent data decompression*, if the descriptor indicates the data block is encoded *utilizing content dependent data compression*" [emphasis from Defendants' Brief]

and

"decompressing the data block with a selected lossless decoder utilizing *content independent data decompression*, if the descriptor indicates the data block is encoded *utilizing content independent data compression.*" [emphasis from Defendants' Brief].

5. Defendants' argument runs off the rails at the very start with this palpably incorrect statement: "The advances Realtime claims to have made in data compression do not have an analogue for data decompression, yet Realtime used some of the same words to describe its allegedly novel decompression techniques." Defendants' Brief, page 1. Realtime made patentable advances in data compression. I recognize that Defendants dispute the novelty of the compression claims, but at least they do not contend that those claims are indefinite. Defendants have confined their indefiniteness argument to certain decompression claims. Realtime's novel compression (or encoding) technique requires an analogous decompression (or decoding) technique because a data stream that has been compressed using Realtime's technique looks different from a data stream that has been compressed using any other technique. This is true at least because of the presence of Realtime's "descriptors" in the data stream. (The parties are seeking this Court's construction of "descriptor.")

6. Therefore, a data stream compressed using Realtime's method requires an analogous decompression method. Conventional decompression methods would fail at least because they would not be able to make use of the descriptors in the data stream.

7. Defendants argue that "content dependent data decompression" and "content independent data decompression" are "completely undefined; and have not been construed before." Defendants' Brief, page 2. That statement is true, as far as it goes, but is inconsequential. A claim term need not be defined expressly in the specification to be meaningful if it would be understood readily by one of skill in the art. As explained below, "content dependent data decompression" simply means a process that reverses the effect of

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"content dependent data compression." "Content independent data decompression" likewise means a process that reverses the effect of "content independent data compression." The two terms would be understood that way by everyone in the field except, apparently, by Defendants and their expert.

8.   A glaring error in Defendants' argument appears at the middle of page 2 of Defendants' Brief: "what decompression technique or algorithm a data recipient (e.g., a bank) uses to decode the data has nothing to do with whether the entity that transmitted the data (e.g., a stock exchange) encoded the data block using an the algorithm found through what the patent calls a 'content independent data compression' procedure or 'content dependent data compression' procedure." That statement is simply false. As explained above, if the system does not understand the significance of the descriptors in the encoded data stream, it cannot know which decompressor to use on a particular data field or data block and decompression will fail. Therefore, the descriptor tells the system how decompression should be performed.

Data Compression

9.   Defendants' characterization on page 3 of their brief of data compression as taught in the Patents is incorrect and wildly skewed. For example, Defendants assert with regard to the '747 Patent that "[t]he 'Summary of the Invention,' which stretches across nearly an entire page in the patent, never once mentions decompression." While literally true, the statement is grossly misleading, implying that decompression was claimed as an afterthought. The '651 specification uses the term "decompression" over 35 times (not counting the claims). The '747 specification discusses "decompression" no fewer than 18 times (not counting the claims). In fact, the first sentence of the '747 specification reads, "The present invention relates generally to a data compression and decompression and, more particularly, to systems and methods for data

compression using content independent and content dependent data compression and decompression." 1:19-22. Furthermore, Fig. 11 is described as a "block diagram of a content independent data decompression system according to one embodiment of the present invention." 5:45-47. Moreover, "FIG. 12 is a flow diagram of a data decompression method according to one aspect of the present invention." 5:48-49.

10.   Defendants go on to allege that, "as taught by the specifications, 'content dependent data compression' and "content independent data compression" are *not* compression techniques or algorithms. They do not and cannot actually compress data. … Rather, these terms refer to procedures, described in the patent, for selecting encoders …" Defendants' Brief, page 3. These statements are false. There is no doubt that selection of an encoder is part of the invention, as is claimed as such. See, e.g., the "selecting one or more lossless encoders" step of claim 14 of the '747 Patent. However, the very next step of the claim is "compressing the data block with a selected encoder utilizing content dependent data compression, if the data block type is recognized as associated with a lossless encoder utilizing content dependent data compression." The plain language of the claims make clear that "content dependent data compression" is a technique for compressing data

Data Decompression

11.   Defendants' characterization of decompression on pages 7-10 of their brief is also flawed and misleading. On page 7, they make the incorrect statement that the "descriptor" identifies the "specific algorithm" used to compress. They then make the further incorrect statement that "The descriptor in any case will identify only which compression algorithm was used." Defendants' Brief, page 9. Those statements have no basis. The '747 specification in multiple places states that "[a] data compression type descriptor is defined as any recognizable

data token or descriptor that indicates which data encoding technique has been applied to the data." See, e.g., '747 Patent at 8:53-56. The patent also describes categories of encoding techniques such as lossy and lossless or content dependent and content independent, which categories may include multiple specific algorithms. Fig. 13A shows this clearly when it identifies boxes 1320 and 30, each of which has multiple specific algorithms within the category of Content Dependent or Content Independent Encoders. Nothing at all in the Patents forbids the descriptor from indicating whether content dependent or content independent compression was used, and not necessarily identifying a specific algorithm within that category. The decoder applies one or more decoding or decompression algorithms to reverse the effect of the encoding or compression algorithms.

12.   First, some background. "Content independent data compression" does not mean compression that does not depend on the data being compressed. The output of a compressor always depends on the input it is provided. "Content independent data compression" means that the *method* used to perform compression is not dependent on the nature of the content of the data. On the other hand, "content dependent data compression" means that the method used to perform compression is dependent on the nature of the content of the data.

13.   The specification clearly explains that: "[C]ontent independent data compression is applied to a data block when the content of the data block cannot be identified or is not associable with a specific data compression algorithm." '747 Patent at 15:57-60. If the content of the data block cannot be identified (that is, there is no data block type associated with it), then the choice of encoder cannot depend on the content of the data block and is therefore "content independent." This distinction is reflected in Realtime's proposed construction for "content independent data compression," which is "compression that is applied using one or more

encoders without regard to the encoder's (or encoders') ability to effectively encode the data block type (or data field type)." Similarly, for "content dependent data compression," Realtime has proposed "compression that is applied using one or more encoders selected based on the encoder's (or encoders') ability to effectively encode the data block type (or data field type)." The difference is made plain by the constructions.

14.   Defendants, however, argue that "nothing differentiates 'content independent data decompression' from 'content dependent data decompression,' and it is therefore impossible to determine whether any particular decompression technique counts as 'content dependent data decompression,' 'content independent data decompression,' both, or neither." Defendants' Brief, p. 11. Defendants' error is in supposing that each decompression technique must "count" as one or the other. The term "count" is not used in the claims. All that is necessary (e.g. in claim 1 of the '651 Patent) is for the decoding process to select the proper decoder corresponding to the encoder that was used to compress the data being decompressed.

15.   With reference, Defendants alleged that "content independent decompression" and "content dependent decompression" "cannot be interpreted to mean what they seem to say: that 'content independent decompression' is decompression independent of the content of the compressed data, while 'content dependent compression' depends on the content of that data." Defendants' Brief, footnote 4 on page 11. As pointed out above, the Patents clearly describe the terms "content independent data compression" and "content dependent data compression." Adding "de" to "compression" to yield the word "decompression" simply means reversing the effect of compression. The disputed terms are not mysterious or indefinite but have a clear meaning to those of skill in the art.

16.   Defendants conclude that "the public has no ability to understand what forms of decompression fall inside or outside the scope of these limitations." I understand first that it is not the general public that must understand the claims, but one of ordinary skill in the art. All that is needed is an understanding of whether the corresponding encoder was chosen by knowing the data block type (content dependent data compression) or not knowing the data block type (content independent data compression). If the data stream has been compressed using the method of the Patents and the decompression method selects a decoder that corresponds to the original encoder, then the decompression method also falls within the scope of the claims. There is no indefiniteness and one of skill in the art will be able to tell an infringing decompression method form a non-infringing one. Specifically, a decompression method that reverses the effect of a content dependent data compression algorithm or of a content independent data compression algorithm, whichever the case may be, falls within the scope of the claims.

17.   At pages 13-16 of their Brief, Defendants argue extensively that somehow Realtime is urging that the terms "content dependent data decompression" and "content independent data decompression" mean the same thing. Realtime has never urged that position. Further, Defendants have even mischaracterized a statement in my Opening Declaration in an effort to show that I actually support this position. See Defendants' Brief, pages 14-15. I do not. I did state, correctly, that "the decompression algorithm is the reverse of whatever compression algorithm was used to encode the data." Opening Declaration, paragraph 13, quoted on page 16 of Defendants' Brief. But that in no way implied that "content dependent data decompression" and "content independent data decompression" mean the same thing. A brief example should suffice. Hotel rooms currently employ different types of locking and unlocking mechanisms. Some require insertion of a metal key. For others, it is sufficient to bring a wireless card into

proximity with the lock. We night use the terms "key unlocking" and "wireless unlocking" to describe these methods. Defendants would have it that there is no discernible difference between "key unlocking" and "wireless unlocking" (although there clearly is a difference) because in both of them the unlocking method is the reverse whatever method was used to perform locking. The argument makes no sense.

18.   Defendants and their expert also say that "[t]he correct data decompression algorithm is never (and cannot be) determined based on whether 'content dependent data compression' or 'content independent data compression' were previously used to compress the data." Defendants' Brief, page 17. It is not even necessary to rebut this false statement because it does not bear on the issue. There is no asserted claim in which the correct decompression algorithm is selected based only on whether content dependent data compression or content independent data compression were previously used to compress the data. Tellingly, Defendants have not even attempted to identify any such claim. Taking claim 1 of the '651 Patent as exemplary, it requires "decoding the data field with a selected lossless decoder utilizing content dependent data decompression, if the descriptor indicates the data field is encoded utilizing content dependent data compression." There is no statement in the claim (or the specification) that the decoder is selected solely on whether content dependent or content independent compression was used. The selection is based on the descriptor, which will indicate the type of encoding method. There is nothing indefinite about the claim.

Written Description

19.   Despite Defendants' and their expert's arguments, decompression is expressly disclosed in two figures and is mentioned 18 times in the specification of just the '747 Patent. Decompression is also shown in two figures and is referred to at least 35 different times in the

'651 Patent. It is clear to one of ordinary skill that decompression is the reverse of compression. The terms are used that way throughout the Patents, which continually refer to "compression/decompression" or a "compression/decompression scheme." See, e.g., the '651 Patent at 9:56; 11:50; 11:53; 13:35; 13:65-66; 14:40; 22:40-41. If there is written description of "content dependent data compression" and "content independent data compression" (which Defendants do not dispute), then the written description of "content dependent data decompression" and "content independent data decompression," being the reverse of the former, is also adequate.

20.   Defendants seem to base their argument on the fact that the claims as originally presented did not contain the limitation to which they now object. But that does not mean that they lack written description support. Defendants once again point out that the literal phrases "content dependent data compression" and "content independent data compression" do not appear literally in the specification (as opposed to the claims). That also does not mean that they lack written description. The nearly identical term "content-dependent compression and decompression" does appear at 13:55 of the '651 Patent. At 1:21-22, the '747 uses the analogous phrase, "content independent and content dependent data compression and decompression." Thus Defendants' arguments based on the supposed absence of the limitations in question from the specification are unfounded.

21.   Once again, on page 22 of their brief, Defendants assert incorrectly that "content dependent and content independent data compression are mutually exclusive procedures (one is used when the encoding system can identify the type of uncompressed data and the other is used when it cannot)." This is a strange position, since Defendants a few pages earlier tried to advance the argument that content dependent and content independent data compression are

actually the same thing, so they would have to be mutually **in**clusive, not exclusive. Content dependent and content independent data compression are neither the same nor are they mutually exclusive, and they are not claimed that way.

22.   In any event, it is understood by everyone in the art that decompression algorithms go hand-in-hand with compression algorithms.

B.   CONCLUSIONS

23.   "Content dependent data decompression" and "content independent data decompression," as used in the Patents and the asserted claims, have clear and unambiguous meanings to one of skill in the art and find ample written description support in the specifications as originally filed.

C.   SIGNATURE AND STATEMENT OF TRUTH

24.   I confirm that the contents of this Declaration are true to the best of my knowledge and belief insofar as it states facts and that it contains my honest opinions on the matters upon which I have been asked to give them.

Dated: April 18, 2012

Michael Ian Shamos, Ph.D., J.D.

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